



General

Guideline Title

Practice guidelines for management of the difficult airway: an updated report by the American Society of Anesthesiologists Task Force on Management of the Difficult Airway.

Bibliographic Source(s)

Apfelbaum JL, Task Force on Management of the Difficult Airway. Practice guidelines for management of the difficult airway: an updated report by the American Society of Anesthesiologists Task Force on Management of the Difficult Airway. *Anesthesiology*. 2013 Feb;118(2):251-70. [130 references] [PubMed](#)

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: American Society of Anesthesiologists Task Force on Management of the Difficult Airway. Practice guidelines for management of the difficult airway: an updated report by the American Society of Anesthesiologists Task Force on Management of the Difficult Airway. *Anesthesiology*. 2003 May;98(5):1269-77.

Regulatory Alert

FDA Warning/Regulatory Alert

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- December 14, 2016 – General anesthetic and sedation drugs : The U.S. Food and Drug Administration (FDA) is warning that repeated or lengthy use of general anesthetic and sedation drugs during surgeries or procedures in children younger than 3 years or in pregnant women during their third trimester may affect the development of children's brains. Consistent with animal studies, recent human studies suggest that a single, relatively short exposure to general anesthetic and sedation drugs in infants or toddlers is unlikely to have negative effects on behavior or learning. However, further research is needed to fully characterize how early life anesthetic exposure affects children's brain development.

Recommendations

Major Recommendations

I. Evaluation of the Airway

- An airway history should be conducted, whenever feasible, before the initiation of anesthetic care and airway management in all patients.
 - The intent of the airway history is to detect medical, surgical, and anesthetic factors that may indicate the presence of a difficult airway.
 - Examination of previous anesthetic records, if available in a timely manner, may yield useful information about airway management.
- An airway physical examination should be conducted, whenever feasible, before the initiation of anesthetic care and airway management in all patients.
 - The intent of the physical examination is to detect physical characteristics that may indicate the presence of a difficult airway.
 - Multiple airway features should be assessed.
- Additional evaluation may be indicated in some patients to characterize the likelihood or nature of the anticipated airway difficulty.
- The findings of the airway history and physical examination may be useful in guiding the selection of specific diagnostic tests and consultation.

II. Basic Preparation for Difficult Airway Management

- At least one portable storage unit that contains specialized equipment for difficult airway management should be readily available.
- If a difficult airway is known or suspected, the following steps are recommended:
 - Inform the patient (or responsible person) of the special risks and procedures pertaining to management of the difficult airway.
 - Ascertain that there is at least one additional individual who is immediately available to serve as an assistant in difficult airway management.
 - Administer facemask preoxygenation before initiating management of the difficult airway. The uncooperative or pediatric patient may impede opportunities for preoxygenation.
 - Actively pursue opportunities to deliver supplemental oxygen throughout the process of difficult airway management.
 - Opportunities for supplemental oxygen administration include (but are not limited to) oxygen delivery by nasal cannulae, facemask or laryngeal mask airway, insufflation; and oxygen delivery by facemask, blow-by, or nasal cannulae after extubation of the trachea.

III. Strategy for Intubation of the Difficult Airway

- The anesthesiologist should have a preformulated strategy for intubation of the difficult airway. The algorithm shown in figure 1 of the original guideline document is a recommended strategy.
 - This strategy will depend, in part, on the anticipated surgery, the condition of the patient, and the skills and preferences of the anesthesiologist.
- The recommended strategy for intubation of the difficult airway includes:
 - An assessment of the likelihood and anticipated clinical impact of six basic problems that may occur alone or in combination: (1) difficulty with patient cooperation or consent, (2) difficult mask ventilation, (3) difficult supraglottic airway placement, (4) difficult laryngoscopy, (5) difficult intubation, and (6) difficult surgical airway access.
 - A consideration of the relative clinical merits and feasibility of four basic management choices: (1) awake intubation *versus* intubation after induction of general anesthesia, (2) noninvasive techniques *versus* invasive techniques (i.e., surgical or percutaneous surgical airway) for the initial approach to intubation, (3) video-assisted laryngoscopy as an initial approach to intubation, and (4) preservation *versus* ablation of spontaneous ventilation.
 - The identification of a primary or preferred approach to: (1) awake intubation, (2) the patient who can be adequately ventilated but is difficult to intubate, and (3) the life-threatening situation in which the patient cannot be ventilated or intubated.
- The identification of alternative approaches that can be used if the primary approach fails or is not feasible.
 - The uncooperative or pediatric patient may restrict the options for difficult airway management, particularly options that involve awake intubation.
 - Airway management in the uncooperative or pediatric patient may require an approach (e.g., intubation attempts after induction of general anesthesia) that might not be regarded as a primary approach in a cooperative patient.
 - The conduct of surgery using local anesthetic infiltration or regional nerve blockade may provide an alternative to the direct management of the difficult airway, but this approach does not represent a definitive solution to the presence of a difficult airway, nor does it obviate the need for a preformulated strategy for intubation of the difficult airway.
- Confirmation of tracheal intubation with capnography or end-tidal carbon dioxide monitoring.

IV. Strategy for Extubation of the Difficult Airway

- The anesthesiologist should have a preformulated strategy for extubation of the difficult airway.
 - This strategy will depend, in part, on the surgery, the condition of the patient, and the skills and preferences of the anesthesiologist.

- The recommended strategy for extubation of the difficult airway includes consideration of:
 - The relative merits of awake extubation *versus* extubation before the return of consciousness.
 - General clinical factors that may produce an adverse impact on ventilation after the patient has been extubated.
 - An airway management plan that can be implemented if the patient is not able to maintain adequate ventilation after extubation.
 - Short-term use of a device that can serve as a guide for expedited reintubation. This type of device can be a stylet (intubating bougie) or conduit. Stylets or intubating bougies are usually inserted through the lumen of the tracheal tube and into the trachea before the tracheal tube is removed. Stylets or intubating bougies may include a hollow core that can be used to provide a temporary means of oxygenation and ventilation. Conduits are usually inserted through the mouth and can be used for supraglottic ventilation and intubation. The intubating laryngeal mask airway and laryngeal mask airway are examples of conduits.

V. Follow-up Care

- The anesthesiologist should document the presence and nature of the airway difficulty in the medical record. The intent of this documentation is to guide and facilitate the delivery of future care. Aspects of documentation that may prove helpful include (but are not limited to):
 - A description of the airway difficulties that were encountered. The description should distinguish between difficulties encountered in facemask or supraglottic airway ventilation and difficulties encountered in tracheal intubation.
 - A description of the various airway management techniques that were used. The description should indicate the extent to which each of the techniques served a beneficial or detrimental role in management of the difficult airway.
- The anesthesiologist should inform the patient (or responsible person) of the airway difficulty that was encountered.
 - The intent of this communication is to provide the patient (or responsible person) with a role in guiding and facilitating the delivery of future care.
 - The information conveyed may include (but is not limited to) the presence of a difficult airway, the apparent reasons for difficulty, how the intubation was accomplished, and the implications for future care.
 - Notification systems, such as a written report or letter to the patient, a written report in the medical chart, communication with the patient's surgeon or primary caregiver, a notification bracelet or equivalent identification device, or chart flags, may be considered.
- The anesthesiologist should evaluate and follow-up with the patient for potential complications of difficult airway management.
 - These complications include (but are not limited to) edema, bleeding, tracheal and esophageal perforation, pneumothorax, and aspiration.
 - The patient should be advised of the potential clinical signs and symptoms associated with life threatening complications of difficult airway management.
 - These signs and symptoms include (but are not limited to) sore throat, pain or swelling of the face and neck, chest pain, subcutaneous emphysema, and difficulty swallowing.

Clinical Algorithm(s)

An algorithm is provided in the original guideline document for the strategy for intubation of the difficult airway.

Scope

Disease/Condition(s)

Difficult airway encountered during facemask ventilation and/or tracheal intubation

Note: For these practice guidelines, a difficult airway is defined as the clinical situation in which a conventionally trained anesthesiologist experiences difficulty with facemask ventilation of the upper airway, difficulty with tracheal intubation, or both. The difficult airway represents a complex interaction between patient factors, the clinical setting, and the skills of the practitioner.

Guideline Category

Evaluation

Clinical Specialty

Anesthesiology

Intended Users

Advanced Practice Nurses

Physician Assistants

Physicians

Guideline Objective(s)

- To facilitate the management of the difficult airway and to reduce the likelihood of adverse outcomes
- To update the "Practice Guidelines for Management of the Difficult Airway: An Updated Report by the Task Force on Difficult Airway Management," adopted by the American Society of Anesthesiologists (ASA) in 2002 and published in 2003

Target Population

Patients of all ages undergoing administration of anesthesia and tracheal intubation

Interventions and Practices Considered

1. Preanesthetic evaluation of the airway
 - Airway history
 - Physical examination
 - Additional evaluation, when indicated
2. Basic preparation for difficult airway management
 - Ensuring availability of equipment for management of a difficult airway (i.e., portable storage unit)
 - Informing the patient with a known or suspected difficult airway
 - Assigning an individual to provide assistance when a difficult airway is encountered
 - Preanesthetic preoxygenation by mask
 - Administration of supplemental oxygen throughout the process of difficult airway management
3. Use of an intubation strategy or algorithm
 - Awake intubation
 - Video-assisted laryngoscopy
 - Intubating stylets or tube-changers
 - Supraglottic airway (SGA) for ventilation (e.g., laryngeal mask airway [LMA], laryngeal tube)
 - SGA for intubation (e.g., intubating laryngeal mask airway [ILMA])
 - Rigid laryngoscopic blades of varying design and size
 - Fiberoptic-guided intubation
 - Lighted stylets or light wands
4. Use of an extubation strategy or algorithm
5. Patient follow-up care
 - Documentation of difficult airway and management
 - Informing and advising the patient (or responsible person) of the occurrence and potential complications associated with the difficult airway

Major Outcomes Considered

- Detection of a difficult airway
- Successful management of the difficult airway
- Adverse events associated with difficult airway (death, brain injury, myocardial injury, airway trauma, damage to teeth)

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Scientific Evidence

Scientific evidence used in the development of these Guidelines is based on findings from literature published in peer reviewed journals. Literature citations are obtained from PubMed and other healthcare databases, direct Internet searches, Task Force members, liaisons with other organizations, and from hand searches of references located in reviewed articles.

State of the Literature

For these updated Guidelines, a review of studies used in the development of the previous update was combined with new studies published from 2002–2012. The scientific assessment of these Guidelines was based on evidence linkages or statements regarding potential relationships between clinical interventions and outcomes. The interventions listed below were examined to assess their relationship to a variety of outcomes related to difficult airway management.

Evaluation of the Airway

- A directed patient history
- A directed airway physical examination
- Diagnostic tests (e.g., radiography)

Basic Preparation for Difficult Airway Management

- Informing the patient with a known or suspected difficult airway
- Availability of equipment for management of a difficult airway (i.e., a portable storage unit)
- Availability of an assigned individual to provide assistance when a difficult airway is encountered
- Preanesthetic preoxygenation by facemask before induction of anesthesia

Strategies for Intubation and Ventilation

- Awake intubation
- Adequate facemask ventilation after induction:
 - Videolaryngoscopy
 - Intubating stylet, tube-changer, or gum elastic bougie
- Laryngeal mask airway:
 - Laryngeal mask airway *versus* facemask
 - Laryngeal mask airway *versus* tracheal intubation
 - Laryngeal mask airway *versus* oropharyngeal airway
- Intubating laryngeal mask airway or the laryngeal mask airway as an intubation conduit
- Rigid laryngoscopic blades of alternative design or size
- Fiberoptic-guided intubation
- A lighted stylet or light wand

Inadequate Facemask Ventilation After Induction—Cannot Intubate

- Laryngeal mask airway for emergency ventilation
- Rigid bronchoscope
- Confirmation of tracheal intubation with capnography or end-tidal carbon dioxide monitoring
- Awake extubation
- Supplemental oxygen:
 - Supplemental oxygen delivery before induction by facemask or insufflation
 - Supplemental oxygen delivery after extubation by facemask, blow-by, or nasal cannulae of the trachea

Follow-Up Care

- Postextubation care and counseling
- Documentation of a difficult airway and its management
- Registration with an emergency notification service

For the literature review, potentially relevant clinical studies were identified via electronic and manual searches of the literature. The updated electronic search covered an 11-yr period from 2002 through 2012. The manual search covered a 16-yr period from 1997 through 2012. Over 400 citations that addressed topics related to the evidence linkages were identified. These articles were reviewed and combined with pre-2002 articles used in the original Guidelines, resulting in a total of 693 articles that contained airway management data. Of these, 253 contained data pertaining specifically to difficult airway management. The remaining 440 articles used nondifficult airway patients or an inseparable mix of difficult and nondifficult airway patients as subjects, and findings from these articles are not considered direct evidence. A complete bibliography used to develop these updated Guidelines, organized by section, is available as Supplemental Digital Content 2, <http://links.lww.com/ALN/A903>

Number of Source Documents

A total of 693 articles contained airway management data; of these, 253 contained data pertaining specifically to difficult airway management

Methods Used to Assess the Quality and Strength of the Evidence

Expert Consensus

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Scientific Evidence

Findings from the aggregated literature are reported in the text of the Guidelines by evidence category, level, and direction. Evidence categories refer specifically to the strength and quality of the *research design* of the studies. Category A evidence represents results obtained from randomized controlled trials (RCTs), and Category B evidence represents observational results obtained from nonrandomized study designs or RCTs without pertinent controls. When available, Category A evidence is given precedence over Category B evidence in the reporting of results. These evidence categories are further divided into evidence levels. Evidence levels refer specifically to the strength and quality of the summarized study findings (i.e., statistical findings, type of data, and the number of studies reporting/replicating the findings) within the two evidence categories. For this document, only the highest level of evidence is included in the summary report for each intervention. Finally, a directional designation of benefit, harm, or equivocality for each outcome is indicated in the summary report in the original guideline document.

Category A

RCTs report comparative findings between clinical interventions for specified outcomes. Statistically significant ($P < 0.01$) outcomes are designated as either beneficial (B) or harmful (H) for the patient; statistically nonsignificant findings are designated as equivocal (E).

Level 1: The literature contains a sufficient number of RCTs to conduct meta-analysis, and meta-analytic findings from these aggregated studies are reported as evidence.

Level 2: The literature contains multiple RCTs, but the number of RCTs is not sufficient to conduct a viable meta-analysis for the purpose of these Guidelines. Findings from these RCTs are reported as evidence.

Level 3: The literature contains a single RCT, and findings from this study are reported as evidence.

Category B

Observational studies or RCTs without pertinent comparison groups may permit inference of beneficial or harmful relationships among clinical interventions and outcomes. Inferred findings are given a directional designation of beneficial (B), harmful (H) or equivocal (E). For studies that report statistical findings, the threshold for significance is $P < 0.01$.

Level 1: The literature contains observational comparisons (e.g., cohort, case-control research designs) between clinical interventions for a specified outcome.

Level 2: The literature contains observational studies with associative statistics (e.g., relative risk, correlation, sensitivity/specificity).

Level 3: The literature contains noncomparative observational studies with descriptive statistics (e.g., frequencies, percentages).

Level 4: The literature contains case reports.

Insufficient Evidence

The lack of sufficient scientific evidence in the literature may occur when the evidence is either unavailable (i.e., no pertinent studies found) or inadequate. Inadequate literature cannot be used to assess relationships among clinical interventions and outcomes, since such literature does not permit a clear interpretation of findings due to methodological concerns (e.g., confounding in study design or implementation) or does not meet the criteria for content as defined in the "Focus" of the Guidelines.

Opinion-Based Evidence

All opinion-based evidence (e.g., survey data, open-forum testimony, Internet-based comments, letters, and editorials) relevant to each topic was considered in the development of these updated Guidelines. However, only the findings obtained from formal surveys are reported.

Opinion surveys were developed for this update by the Task Force to address each clinical intervention identified in the document. Identical surveys were distributed to expert consultants and American Society of Anesthesiologists (ASA) members.

Category A: Expert Opinion

Survey findings from Task Force-appointed expert consultants are reported in summary form in the text, with a complete listing of consultant survey responses reported in appendix 2 of the original guideline document.

Category B: Membership Opinion

Survey findings from a random sample of active ASA members are reported in summary form in the text, with a complete listing of ASA member survey responses reported in appendix 2 of the original guideline document.

Survey responses from expert and membership sources are recorded using a five-point scale and summarized based on median values. (When an equal number of categorically distinct responses are obtained, the median value is determined by calculating the arithmetic mean of the two middle values. Ties are calculated by a predetermined formula.)

Strongly Agree: Median score of 5 (At least 50% of the responses are 5)

Agree: Median score of 4 (At least 50% of the responses are 4 or 4 and 5)

Equivocal: Median score of 3 (At least 50% of the responses are 3, or no other response category or combination of similar categories contain at least 50% of the responses)

Disagree: Median score of 2 (At least 50% of responses are 2 or 1 and 2)

Strongly Disagree: Median score of 1 (At least 50% of responses are 1)

Category C: Informal Opinion

Open-forum testimony during development of the previous Guidelines, internet-based comments, letters, and editorials are all informally evaluated

and discussed during the formulation of Guideline recommendations. When warranted, the Task Force may add educational information or cautionary notes based on this information.

Methods Used to Analyze the Evidence

Meta-Analysis

Systematic Review

Description of the Methods Used to Analyze the Evidence

Initially, each pertinent study finding was classified and summarized to determine meta-analysis potential. The original Guidelines reported literature pertaining to seven clinical interventions that contained enough studies with well-defined experimental designs and statistical information to conduct formal meta-analyses. New literature pertaining to two clinical interventions contained enough studies with well-defined experimental designs and statistical information sufficient for meta-analyses. These interventions were: (1) preoxygenation: 3–5 min of breathing oxygen versus four maximal breaths, and (2) postextubation supplemental oxygen: delivery by mask, blow-by, or nasal cannulae *versus* room air.

General variance-based effect-size estimates or combined probability tests were obtained for continuous outcome measures, and Mantel–Haenszel odds ratios were obtained for dichotomous outcome measures. Two combined probability tests were used as follows: (1) the Fisher combined test, producing chi-square values based on logarithmic transformations of the reported *P* values from the independent studies, and (2) the Stouffer combined test, providing weighted representation of the studies by weighting each of the standard normal deviates by the size of the sample. An odds ratio procedure based on the Mantel–Haenszel method for combining study results using 2×2 tables was used with outcome frequency information. An acceptable significance level was set at $P < 0.01$ (one-tailed). Tests for heterogeneity of the independent studies were conducted to ensure consistency among the study results. DerSimonian–Laird random-effects odds ratios were obtained when significant heterogeneity was found ($P < 0.01$). To control for potential publishing bias, a "fail-safe *n*" value was calculated. No search for unpublished studies was conducted, and no reliability tests for locating research results were performed. To be accepted as significant findings, Mantel–Haenszel odds ratios must agree with combined test results whenever both types of data are assessed. In the absence of Mantel–Haenszel odds ratios, findings from both the Fisher and weighted Stouffer combined tests must agree with each other to be acceptable as significant.

New meta-analytic findings were obtained for the following evidence linkages: (1) preoxygenation for 3–5 min *versus* 4 deep breaths, (2) videolaryngoscope *versus* direct laryngoscopy, and (3) supplemental oxygen after extubation (see table 4 in the original guideline document).

In the original Guidelines, interobserver agreement among Task Force members and two methodologists was established by interrater reliability testing. Agreement levels using a kappa (κ) statistic for two-rater agreement pairs were as follows: (1) type of study design, $\kappa = 0.64$ – 0.78 ; (2) type of analysis, $\kappa = 0.78$ – 0.85 ; (3) evidence linkage assignment, $\kappa = 0.89$ – 0.95 ; and (4) literature inclusion for database, $\kappa = 0.62$ – 1.00 . Three-rater chance-corrected agreement values were: (1) study design, $Sav = 0.73$, $Var(Sav) = 0.008$; (2) type of analysis, $Sav = 0.80$, $Var(Sav) = 0.008$; (3) linkage assignment, $Sav = 0.93$, $Var(Sav) = 0.003$; (4) literature database inclusion, $Sav = 0.80$, $Var(Sav) = 0.032$. These values represent moderate to high levels of agreement. For the updated Guidelines, the same two methodologists involved in the original Guidelines conducted the literature review.

Consensus-Based Evidence

Consensus was obtained from multiple sources, including: (1) survey opinion from consultants who were selected based on their knowledge or expertise in difficult airway management, (2) survey opinions solicited from active members of the American Society of Anesthesiologists, (3) testimony for the previous update from attendees of a publicly held open-forum at a major national anesthesia meeting[†], (4) Internet commentary, and (5) Task Force opinion and interpretation. The survey rate of return was 63% ($n = 66$ of 105) for the consultants (see table 5 in the original guideline document), and 302 surveys were received from active American Society of Anesthesiologists members (table 6 in the original guideline document).

An additional survey was sent to the expert consultants asking them to indicate which, if any, of the evidence linkages would change their clinical practices if the Guideline update was instituted. The rate of return was 24% ($n = 25$ of 105). The percent of responding consultants expecting no change associated with each linkage were as follows: (1) airway history = 84%, (2) airway physical examination = 88%, (3) preparation of patient and equipment = 80%, and (4) difficult airway strategy = 80%, extubation strategy = 64% and follow-up care = 72%. Eighty-eight percent of the respondents indicated that the Guidelines would have no effect on the amount of time spent on a typical case, and 12% indicated that there would be an increase of the amount of time spent on a typical case with the implementation of these Guidelines. One hundred percent indicated that new equipment, supplies, or training would not be needed to implement the Guidelines, and 100% indicated that implementation of the Guidelines would

not require changes in practice that would affect costs.

‡ American Society of Anesthesiologists Annual Meeting, Dallas, TX, October, 1999

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The original Guidelines and the first update were developed by an American Society of Anesthesiologists (ASA)-appointed Task Force of ten members, consisting of Anesthesiologists in private and academic practices from various geographic areas of the United States and two consulting methodologists from the ASA Committee on Standards and Practice Parameters.

The original Guidelines and the first update in 2002 were developed by means of a seven-step process. First, the Task Force reached consensus on the criteria for evidence. Second, original published research studies from peer-reviewed journals relevant to difficult airway management were reviewed and evaluated. Third, expert consultants were asked to: (1) participate in opinion surveys on the effectiveness of various difficult airway management recommendations and (2) review and comment on a draft of the Guidelines. Fourth, opinions about the Guideline recommendations were solicited from a sample of active members of the ASA. Fifth, opinion-based information obtained during open forums for the original Guidelines,[†] and for the previous updated Guidelines,[‡] was evaluated. Sixth, the consultants were surveyed to assess their opinions on the feasibility of implementing the updated Guidelines. Seventh, all available information was used to build consensus to finalize the updated Guidelines.

In 2011, the ASA Committee on Standards and Practice Parameters requested that the updated Guidelines published in 2002 be re-evaluated. This update consists of an evaluation of literature published since completion of the first update, and an evaluation of new survey findings of expert consultants and ASA members.

† International Anesthesia Research Society 66th Clinical and Scientific Congress, San Francisco, CA, March 15, 1992

‡ American Society of Anesthesiologists Annual Meeting, Dallas, TX, October 10, 1999

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

Expert consultants were asked to: (1) participate in opinion surveys on the effectiveness of various difficult airway management recommendations and (2) review and comment on a draft of the Guidelines. Opinions about the Guideline recommendations were solicited from a sample of active members of the American Society of Anesthesiologists (ASA). Opinion-based information obtained during open forums for the original Guidelines, and for the previous updated Guidelines, was evaluated. The consultants were surveyed to assess their opinions on the feasibility of implementing the updated Guidelines.

The updated Guidelines were approved by the ASA House of Delegates on October 17, 2012.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

Evidence was obtained from two principle sources: scientific evidence and opinion-based evidence.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Successful airway management
- Fewer adverse outcomes associated with difficult airway management

Potential Harms

Complications of difficult airway management include (but are not limited to) edema, bleeding, tracheal and esophageal perforation, pneumothorax, aspiration, death, brain injury, cardiopulmonary arrest, unnecessary surgical airway, airway trauma and damage to the teeth.

Qualifying Statements

Qualifying Statements

- Practice Guidelines are systematically developed recommendations that assist the practitioner and patient in making decisions about health care. These recommendations may be adopted, modified, or rejected according to clinical needs and constraints and are not intended to replace local institutional policies. In addition, Practice Guidelines developed by the American Society of Anesthesiologists (ASA) are not intended as standards or absolute requirements, and their use cannot guarantee any specific outcome. Practice Guidelines are subject to revision as warranted by the evolution of medical knowledge, technology, and practice. They provide basic recommendations that are supported by a synthesis and analysis of the current literature, expert and practitioner opinion, open-forum commentary, and clinical feasibility data.
- The primary focus of these Guidelines is the management of the difficult airway encountered during administration of anesthesia and tracheal intubation. Some aspects of the Guidelines may be relevant in other clinical contexts. The Guidelines do not represent an exhaustive consideration of all manifestations of the difficult airway or all possible approaches to management.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Clinical Algorithm

Mobile Device Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Staying Healthy

IOM Domain

Effectiveness

Safety

Identifying Information and Availability

Bibliographic Source(s)

Apfelbaum JL, Task Force on Management of the Difficult Airway. Practice guidelines for management of the difficult airway: an updated report by the American Society of Anesthesiologists Task Force on Management of the Difficult Airway. *Anesthesiology*. 2013 Feb;118(2):251-70. [130 references] [PubMed](#)

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2003 May (revised 2013 Feb)

Guideline Developer(s)

American Society of Anesthesiologists - Medical Specialty Society

Source(s) of Funding

American Society of Anesthesiologists

Guideline Committee

Task Force on Management of the Difficult Airway and the Committee on Standards and Practice Parameters

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Financial Disclosures/Conflicts of Interest

Not stated

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: American Society of Anesthesiologists Task Force on Management of the Difficult Airway. Practice guidelines for management of the difficult airway: an updated report by the American Society of Anesthesiologists Task Force on Management of the Difficult Airway. *Anesthesiology*. 2003 May;98(5):1269-77.

Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) and EPUB for eBook devices from the [Anesthesiology Journal Web site](#)

Print copies: Available from the American Society for Anesthesiologists, 520 North Northwest Highway, Park Ridge, IL 60068-2573.

Availability of Companion Documents

None available

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI on July 13, 2005. The information was verified by the guideline developer on July 20, 2005. This summary was updated by ECRI Institute on July 10, 2013. This summary was updated by ECRI Institute on February 15, 2017 following the U.S. Food and Drug Administration advisory on general anesthetic and sedation drugs.

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